REMARKS

Claims 2-16 are currently pending in the application; with claims 4 and 5 being independent. Claims 2-16 were pending prior to the Office Action. In the current amendment, claims 4, 5 and 9 have been amended.

Claim 4 has been amended only for clarification, without narrowing its scope. The amendments to claim 4 were not made to overcome any statutory rejection.

The Examiner is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein. Applicant respectfully requests favorable consideration thereof in light of the amendments and comments contained herein, and earnestly seeks timely allowance of the pending claims.

Claim Rejections – 35 USC §102

The Examiner has rejected claims 2-4, 11-13 and 16 under 35 U.S.C. 102 (a) as being anticipated by US 6,515,275 ("Hunter et al."). This rejection is respectfully traversed.

Applicant has amended claim 4 for clarification, without narrowing its scope. Claim 4 now recites "a fourth filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, the fourth filter being mounted on the second pixel."

Hunter et al. merely discloses a method and apparatus for determining the illuminant type in a digital image, using an infrared (IR) filter. A photo sensor has an array of photo-cells that detect non-visible light, embedded in an array of photo-cells that detect only visible light. The type of illuminant for a scene can be determined using the non-visible photocells. The intensities of red, green, blue, and IR light across an image illuminated by an illuminant (Fig. 9, 902, 904, 906, 908) are measured. The intensity of IR light is then compared to the average intensity of the red, green, and blue light (910). When the intensity of IR light is much smaller than the intensity of the red, green and blue light, the illuminant type is decided to will be a light source that creates light by exciting phosphors that reemit visible light (typically a florescent light). When the intensity of the IR light is approximately the same as the intensity of light in the red, green, and blue wavelength range, the light source is one of the daylight curves (see FIG. 2). When the intensity of light in the IR band is much greater than the intensity of the red, green and blue light,

the illuminant type will be a tungsten source (FIG. 1) (col. 3 lines 45-63).

None of the embodiments of Hunter et al. disclose a filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, the filter being mounted on a pixel, so that a signal charge output from this pixel is used to distinguish a light source type.

In one embodiment, Hunter et al. uses an IR filter with a peak centered approximately at 720 nm (Fig. 7) (col. 3 lines 36-38). In another embodiment, Hunter et al. uses an IR filter with a peak centered approximately at 800 nm (FIG. 8) (col. 3 lines 38-39). IR filters transmit radiation with wavelengths longer than visible wavelengths. Infrared radiation is not light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm.

In a third embodiment in Hunter et al. there is no filter and light across the entire CCD sensitivity is collected (FIG. 11) (col. 3 lines 40-41). This embodiment presents no filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm.

Hence, with respect to claim 4, Hunter et al. fails to disclose, at least, "a second pixel disposed in a predetermined region of the solid-state image pick-up device, the second pixel being used for distinguishing a light source type, [...] a fourth filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, the fourth filter being mounted on the second pixel; and a control unit that distinguishes a light source type based on (i) a signal charge output from a first pixel mounted with the first filter and (ii) a signal charge output from the second pixel."

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 102 (a) rejection of claim 4. Claims 2-3 11-13 and 16 depend from claim 4 and are allowable at least by virtue of their dependency.

Claim Rejections - 35 USC §103

35 U.S.C. 103(a) Rejection: Hunter et al. - Nonaka et al.

The Examiner rejected claims 14 and 15 under 35 U.S.C. 103 (a) as being unpatentable over Hunter et al. in view of US 5,732,293 ("Nonaka et al."). Applicant traverses this rejection.

Applicants submit that the Examiner's reliance on Nonaka et al. on page 10 of the Office Action as allegedly pertaining to incremental features of claims 14 and 15 fails to make up for the deficiencies of the asserted Hunter et al. reference discussed above with respect to independent claim 4. Therefore, the asserted grounds of rejection fail to establish *prima facie* obviousness of claims 14 and 15.

The teachings of Hunter et al. are presented above in the arguments traversing the §102 rejection of claim 4. As provided above in the arguments for the allowability of claim 4, Hunter et al. fails to teach or suggest all of the elements for claim 4.

Nonaka et al. merely discloses an electronic controlled camera with a color correction function. The camera uses an electronic flash that illuminates an object. A first photometric unit measures a visible light component of ambient light for the object. A second photometric unit measures an infrared light component of the ambient light for the object. A determining unit determines the ratio between the visible light component measured by the first photometric unit and the infrared light component measured by the second photometric unit. On the basis of the ratio determined by the determining unit, a light emission determining unit determines whether the electronic flash should be used to aid in exposure (Abstract, col. 3 lines 60-67, Fig. 10).

Nonaka et al. does not disclose or suggest a filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, the filter being mounted on a pixel, so that a signal charge output from this pixel is used to distinguish a light source type. Nonaka et al. uses infrared light (col. 11 lines 44-46), which does not have a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm.

Hence, with respect to claim 4, Nonaka et al. fails to teach or suggest, at least, "a second pixel disposed in a predetermined region of the solid-state image pick-up device, the second pixel being used for distinguishing a light source type, [...] a fourth filter for transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, the fourth filter being mounted on the second pixel; and a control unit that distinguishes a light source type based on (i) a signal charge output from a first pixel mounted with the first filter and (ii) a signal charge output from the second pixel."

In conclusion, Hunter et al. and Nonaka et al. fail to teach or suggest all of the elements for claim 4.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 (a) rejection of claims 14 and 15.

35 U.S.C. 103(a) Rejection: Juen - Ishimaru et al.

The Examiner rejected claims 5-10 under 35 U.S.C. 103 (a) as being unpatentable over US 6,459,449 ("Juen") in view of US 7,006,135 ("Ishimaru et al."). Applicant respectfully traverses this rejection.

Amended claim 5 recites a light source type distinction sensor that distinguishes whether a light source in photographing is the sunlight or the specific light source based on a signal charge output from a pixel mounted with a filter, the filter transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm.

To establish a *prima facie* case of obviousness, the Examiner has the burden of meeting the basic criterion that the prior art must teach or suggest all of the claim limitations.

Regarding this basic criterion, Applicant submits that Juen and Ishimaru et al. do not disclose or suggest a light source type distinction sensor that distinguishes whether a light source in photographing is the sunlight or the specific light source based on a signal charge output from a pixel mounted with a filter, the filter transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm.

Juen merely discloses a color reproduction correction device for an imaging apparatus that obtains color signals with a plurality of spectral characteristics by imaging an object. A color image is obtained by subjecting the color signals to signal processing using a color reproduction correction device that includes a light source inferring device, which infers the type of the illuminating light source. A memory device stores, for each of a plurality of predetermined light sources, constants for correction matrix operations (Abstract).

In Juen, the correction matrix values for predetermined light sources are determined by taking into consideration the adaptive effect of the eyes (col. 9 lines 32-40). A light source is not distinguished in Juen using a filter transmitting a light having at least a wavelength in the vicinity

of 520 nm or in the vicinity of 580 nm. In fact, a filter transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm is not mentioned anywhere in Juen.

Ishimaru et al. merely discloses a camera capable of white balance correction (WBC). The camera includes an image pickup optical system, an image sensor for receiving light from an object, a three-primary-color (3-color) detection section for detecting 3-color signals based on the image sensor output, a matrix processing section for calculating 2-color difference signals from the 3-color signals, a visible-light brightness detection section for detecting visible-light brightness by the output from the 3-color detection section or by a photometric section, an infrared-light detection section for detecting the lightness of infrared-light, and an artificial-light detection section for calculating the ratio of artificial light and natural-light. A correction range for performing the WBC is obtained based on the ratio of artificial-light and natural-light computed by the artificial-light detection section, and the WBC is performed when the 2-color difference signals are within the correction range (Abstract).

In Ishimaru et al., the matrix processing section 8 (fig. 2) separates a color signal output (R, G, and B) from an image sensor (CCD 3) into a brightness signal Y and color difference signals R-Y and B-Y (Fig. 2, col. 5 lines 64-67, col. 4 line 63-col. 5 line 3). The brightness signal Y and the color difference signals R-Y and B-Y are then output (Fig. 2). A visible light photometric section 17 serves as a visible light brightness detection section for detecting the output from the RGB detection section; an infrared light photometric section 16 serves as means of infrared detection for detecting the luminosity of infrared light; and an artificial light detection section 34 calculates the ratio of artificial light and natural light, as a measure representing the "artificial light source likeliness" from the output of the visible light brightness detection section and the output from the infrared light photometric section 16 (col. 4 lines 40-48).

Hence, Ishimaru et al. uses infrared light to detect an artificial light. Ishimaru et al. does not use a filter transmitting a light having at least a wavelength in the vicinity of 520 nm or in the vicinity of 580 nm, to detect an artificial light.

In conclusion, Juen and Ishimaru et al. fail to teach or suggest all of the elements for claim 5.

For all of the above reasons, taken alone or in combination, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. 103 (a) rejection of claim 5. Claims 6-10 depend from claim 5 and are allowable at least by virtue of their dependency.

Conclusion

In view of the above amendments and remarks, this application appears to be in condition for allowance and the Examiner is, therefore, requested to reexamine the application and pass the claims to issue.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Corina E. Tanasa, Limited Recognition No. L0292 under 37 CFR §11.9(b), at telephone number (703) 208-4003, located in the Washington, DC area, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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